

Enough Coal Wasted To Offset Shortage

Data Compiled by Experts Show Where the Fuel Goes and How Industrial Plants Easily Might Effect Enormous Saving

By F. F. Uehling.

UNLESS there is a marked improvement in the fuel situation the Government will undoubtedly revive the Fuel Administration as the most practicable means of coping with the present fuel situation. If that happens doubtless the Fuel Administration will start in where it left off by enforcing the rule that needless waste of coal in power plants shall cease. This rule and the effective penalty of withholding fuel from persistent wasters were adopted by it just prior to the armistice.

Enormous fuel savings can easily be made in power plants, which would not only benefit the plant owners themselves but would also help all classes of coal consumers by reducing the demand.

The popular impression is that production has nearly halted, and the reader may begin to wonder how coal can be saved if it can't be bought. The truth is that present production is only slightly under normal, probably less than 10 per cent. by every fuel user would more than counterbalance the shortage.

Where the Coal Goes.

Much greater savings can be made in general industry than in homes, because most of the coal is used for other than domestic purposes. The table illustrates this fact. It will be noted from the chart that domestic consumption is only about 17 per cent. of the total, whereas 25 per cent. is utilized by the railroads and over 36 per cent. by industrial plants.

COAL CONSUMPTION IN UNITED STATES DURING 1917. NET TONS.

BITUMINOUS COAL	
Railroads	153,700,000
Industrial plants	174,356,000
Electric utilities	31,693,000
Used at mines	12,117,000
For making beet sugar	22,247,000
For making by-product coke	21,506,000
For making coal gas	4,960,000
Ocean steamers	10,884,000
Exports	23,840,000
Domestic purposes	57,104,000
Total bituminous	654,417,000

ANTHRACITE COAL	
Railroads, approximately	6,500,000
Industrial, approximately	20,000,000
Domestic, approximately	50,000,000
Exports, approximately	6,000,000
Total anthracite	82,500,000
Total consumption bituminous and anthracite	736,917,000

Industrial, electrical utility and mine plants consume about 240,000,000 tons, or nearly 40 per cent. of the total. This is not only the greatest field for fuel saving, but it is the easiest one to improve, for the reason that each boiler attendant consumes a relatively large amount of fuel and to teach a small number of men to burn a large quantity is easier than to teach a larger

aggregation of domestic or other consumers to burn a smaller quantity.

The 240,000,000 tons consumed in industrial and public utility plants, costing say \$3.50 per ton, totals over \$800,000,000. Of this gigantic amount about 90 per cent. is dissipated in various ways, leaving but a remnant of 10 per cent. of the energy originally in the fuel to be delivered in the form of light and power.

Biggest Waste Is Up the Chimney.

The United States Bureau of Mines states that 35 per cent. of the coal is wasted up the chimney alone in the average boiler plant. When heat worth more than \$200,000,000 escapes yearly from the chimneys of industrial plants alone it is time to sit up and take notice. My own experience convinces me that the Government's estimate of 35 per cent. chimney waste is most conservative, for I believe it to be nearer 50 per cent. Some waste is inevitable, but a material reduction can be effected; in fact, in very efficient plants the chimney waste is less than 15 per cent. instead of 35 per cent., a saving of 20 per cent. by simply preventing some of the unnecessary stack waste.

This saving is accomplished primarily by burning fuel with the correct quantity of air. Maximum fire temperature requires a definite amount of air for every pound of fuel burned. Too much air reduces this temperature to an astounding degree and it is responsible for most of the heat wasted up the chimney.

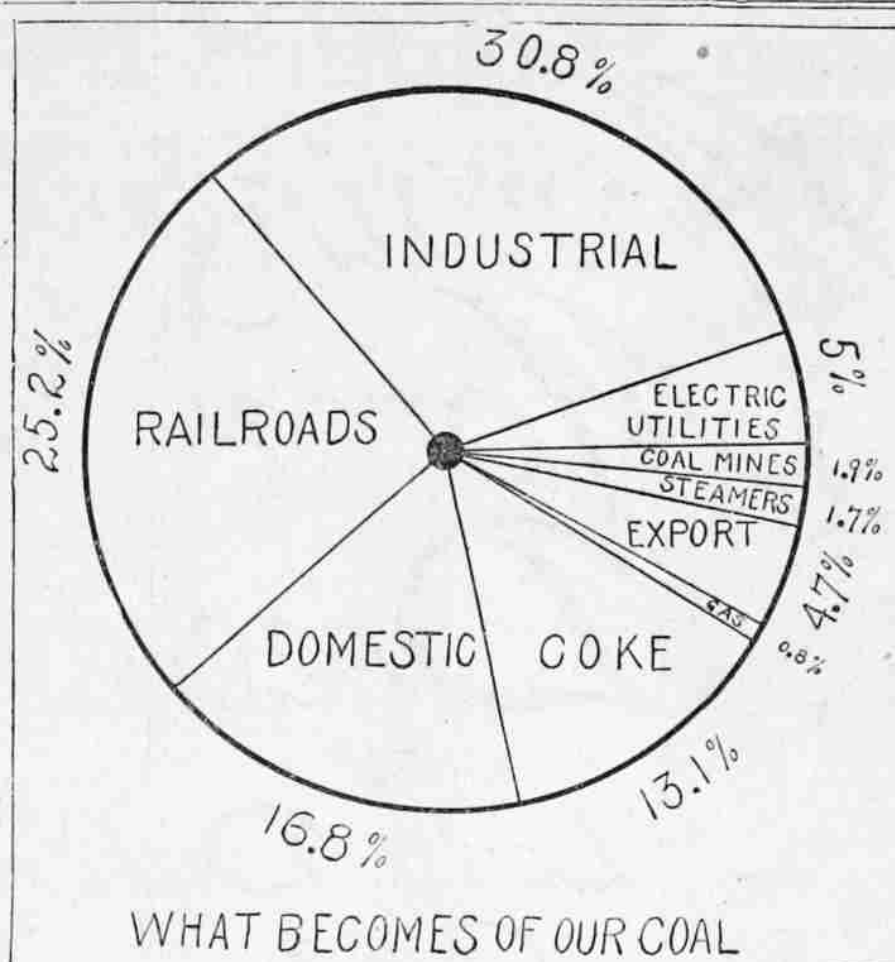
A 15 per cent. saving, which is easily obtainable in the average plant, would represent 36,000,000 tons, or more than \$300,000,000. Let us now see how far this saving alone could go in meeting our present fuel shortage.

Production Little Below Normal.

In 1920 the average consumption per person was 0.56 tons, whereas in 1918 the per capita consumption was 5.44 tons. Production of coal has been increasing rapidly to meet this demand as shown below until the year 1919, when a deficit of nearly 20 per cent. resulted, largely owing to the miners' strike.

Year	Pennsylvania Anthracite Tons	Bituminous Tons
1918	91,525,000	478,425,000
1919	90,851,000	422,704,000
1920	85,996,000	442,624,000
1916	87,575,000	402,520,000
1917	89,612,000	551,790,000
1918	98,826,000	579,386,000
1919	86,200,000	458,063,000

The termination of the strike found us with a very small reserve supply, and ever since we have had a hand to mouth sort of existence. Present production is really not as bad as represented. In fact, it is considerably higher than during a corresponding period last year and is less than 10 per cent. below normal. Still the lag in production is enough to prevent getting caught up and refilling our bins.



This year's difficulties are due principally to the unusual shortage of cars.

The Government contemplates spending \$75,000,000 shortly for new freight cars. Coal constitutes one-third of the total tonnage transported by rail, hence if one-third of the above amount is used for purchasing coal cars this sum would purchase 3,333 cars at \$2,000 per car, not counting locomotives to haul them.

There are nearly 1,000,000 cars suitable for transporting coal; therefore such new cars would not help much because they represent less than 1 per cent. whereas 10 per cent. increase or more is required. Furthermore, new cars cannot be delivered in time.

The alternative solution is, therefore, the reduction of waste in using fuel. This can be put into effect almost immediately. Furthermore, it would not be necessary to disarrange commerce through embargoes in favor of coal shipments, nor would it be necessary to adopt heatless days and lightless nights in order to accomplish the desired result.

I do not mean by this that the idea of new cars should be abandoned; we must

have them. Better transportation facilities are essential.

All the needless waste in this country of coal alone has been calculated to be more than 100,000,000 tons per year—enough to meet the entire fuel requirements of all gas and electric utility companies in the United States for about three years, or to keep all the railroads in this country running for nearly eight months, or to keep every home fire burning for about a year.

Specific instructions for saving fuel need not be gone into here. They are available to all who seek them. The entire contents of many text books, Government bulletins and technical periodicals are devoted to this subject.

Today it is compulsory by law to equip every boiler with a safety valve and gauge determining the amount of water. These precautions are necessary to prevent explosions. Plant owners are not, however, compelled to install appliances for saving fuel. Our present as well as our future prosperity involves this principle, for it is indisputable that nearly every necessity and pleasure of modern life is entirely dependent upon fuel.

Marvels of a Real Soundproof Room

It is said that the Physiological Institute of the University of Utrecht possesses what is probably the most remarkable room in the world, a chamber about seven and a half feet square, which is claimed to be absolutely noiseless, as far as the entrance of sounds from outside is concerned.

It is on the top story of a laboratory building and is an inside room, but is so arranged that it can be ventilated and inundated with sunshine. The walls, floor and ceiling each

consist of half a dozen layers of different substances, with air spaces and interstices filled with sound deadening materials.

Some persons when in the room experience a peculiar sensation in the ears. While every effort has been made to exclude sounds that are not wanted, of course the object of constructing this singular room was to experiment with phenomena connected with sound. Some of the sounds employed are made in the room itself; others are introduced from outside by means of a copper tube, which is plugged with lead when not in use.

Pilgrim Mothers Gain Recognition at Last

Women's Bravery Equal to Men's in Perils of the Mayflower's Voyage and Hardships of the Wilderness

THE Pilgrim Mothers are about to come into their own. For generations the descendants of that doughty little band who came over on the Mayflower, and the people of the United States who are wont to trace back to the Plymouth Colony the beginnings of free institutions in America, have given honor to the Pilgrim Fathers, and this year are celebrating their tercentenary. But with that they are about to pay tribute to the brave women who came with the fathers and shared their bitter struggle with the wilderness.

When the Pilgrim tercentenary was first planned by the Sulgrave Institution, which is conducting both the celebrations now going on in England and the early celebrations in this country, the people of Provincetown, where the Pilgrims first landed, decided to give belated recognition to the women of Elder Brewster's church.

Tribute to Their Courage.

Their courage is to be commemorated by a great memorial that will rise near the monument to the Pilgrim Fathers at Provincetown. The local committee at Provincetown has announced that it has asked Congress and the Massachusetts Legislature for appropriations of \$300,000, and will raise \$50,000 more from among the descendants of the Mayflower women, with which to build the monument and construct a stone pier, and approach to the two pillars that will mark the curving sandbanks which were the Pilgrims' first sight of the new world.

How any of the Pilgrim women survived the terrors of that perilous voyage and the famine and cold of the following winter is not the least of the remarkable features of the adventure. In a raw climate, with inadequate shelter and food, with a desolate sea before them and behind them dark woods filled with Indians, they went through privations that reduced their little band to exactly half its numbers in the first few months of their settlement.

Only the strongest and those judged most fit to bear the burden of home building had embarked on the Mayflower, the others having been left at Leyden until conditions were such that it would be possible for them also to come over with a fair chance of survival.

Without these women it is doubtful if the colony would have succeeded, for they helped build homes, sought food to eke out their meagre supplies, tended the sick and sustained the others by their quiet courage, even when their situation seemed hopeless. They had not come without anticipating many troubles, and they met those which came in a way that is the brightest chapter in that hard winter.

On the voyage, which lasted from September 16 to November 11, the women must have suffered severely. They left Southampton in a gale and storms followed them the whole way, until the ship cracked and leaked and much of their food was spoiled. One big plank in the ship was so bent that it was only repaired by the fortunate chance of a

Death's Heavy Toll.

It was in March that a despairing entry is found in the chronicles of the settlement:

"This month thirteen of our number die. And in three months past dies half our company: the greatest part in the depth of winter, wanting houses and other comforts, being infected with the scurvy and other diseases, which their long voyage and unaccustomed condition brought upon them, so that there die sometimes two or three a day. Of the hundred persons scarce fifty remain, the living scarce able to bury the dead, the well not sufficient to tend the sick, there being in their time of greatest distress but six or seven who spare no pains to help them. Two of the seven were Mr. Brewster, their reverend elder, and Mr. Standish, their captain."

They buried their dead in the bank and sowed corn above the levelled graves so that the Indians would not suspect their plight and realize how their numbers had dwindled. But when the Mayflower returned to England in April not one of them, man or woman, fled from the prospect of another winter as desperate as the first.

Naturally, where they were so dependent upon each other, those left alone by the death of husband or wife sought another mate for their mutual aid and protection against hunger and sickness. The story of the wooing of Miles Standish, who sent the youthful John Alden to plead with Priscilla Mullings, is an American classic, but it is not so generally known that Alden was a Southampton cooper who had come on the Mayflower probably for the sole reason that he would be able to be near his Priscilla. A bashful youth, indeed, to follow his lady across the sea and then not dare to plead his own cause until she prompted him.

American Financiers Invade Pall Mall, Historic Street of Leisure

New York Bank Sets Up London Branch in Thoroughfare Famed for Three Hundred Years as Centre of Clubdom--Recalls Traditions of Its Magnificent Neighbors and the Romances of Nell Gwyn and Emma Lyon

LONDON, July 27.
TO open a new American branch office in London is no great achievement. Every one is doing it. But a historic, philosophic and artistic guidebook of the new office's locality is apparently going beyond the powers usually attributed to the soulless banking corporation. Incidentally the Guaranty Trust Company's little brochure on Pall Mall will clear up the origin of the street's name and the names of the various austere and magnificent clubs which line its walks. Their descriptive matter speaks thus:

"Pall Mall! It sounds like no other street, and it is like no other street in the world. Its name came from a game played by Stuart princes near their palace, and it is been a street of gallant leisure to those nearest the court for three hundred years. The Palace of the Tudors is at one end and Trafalgar Square at the other. Marlborough House, where the great Duke lives, and where the eldest son of Queen Victoria took up house on his marriage, and remained until he became king, has its gates entering on its western end. Peppys wrote of it as a place for clubbing, and even to-day it is virtually a street of clubs. The club is an English institution, and although it has spread all over the world there is no city except London that has a whole street of clubs. They set the tone and pace of the street.

A Street of Leisure.

"Ordinarily this is a street of leisure, where people walk with pleasure and expect every yard or two to see a friend. The returned Anglo-Indian, or big game hunter from Africa, or official from distant parts of the earth does not feel that he is back in London till he has taken his lean, brown face along Pall Mall and exchanged nods with old schoolfellows and (if in an expansive mood) a word or two with the old commissionaire of his club. Pall Mall was home to most of the originals of Kipling's stories. Truly the unknown poet expressed the *cri-de-cœur* of his countrymen when he wrote:

"There's no place like club."

"Most of these 'material monasteries' date from the first half of the last century. The United Service Club, on the east side of Waterloo place, was the Duke of Wellington's favorite club, and the members benefited by his interdict, for here he berated the committee and had the price of the midday chop reduced to a shilling.

"On the other side of Waterloo place is the Athenium, guarded by Minerva over the porch, the only lady who has so far taken a permanent place in a Pall Mall club. The clubhouse is the work of Decimus Burton, and it has the finest club library in London. Membership of the Athenium connotes eminence in the arts or in the church. It is a favorite retreat to-day of Sir James Barrie, and there in an atmosphere of Anglican bishops and the greatest living authorities

on the most difficult subjects, and guarded by their silence, Sir James writes his fairy stories and his Scots dialect romances.

"Next to the Athenium is the Travellers' Club. Its membership is limited to those who have travelled at least 500 miles, a much easier qualification nowadays than when the club was formed, but it is still a very exclusive body and keeps out of the Reform. Then come the Reform, with its grim Italianate exterior that recalls the Farnese Palace in Rome. It looks like a place of secrets, but is really the final gesture of the Whig party, and it now houses such varied and democratic figures as Mr. Arnold Bennett, Mr. Wells, Mr. Massingham, and many others. Nevertheless the Reform is still the club of Liberal Cabinet Ministers and the aristocratic families who hold to the Liberal side.

"The Carlton Club, separated from the Reform by a little alley, is a more ornate edifice and suggests rather the modern business man than the political and landed gentry whose stronghold it originally was. Every Conservative Member of Parliament is eligible for membership.

"The Marlborough Club, at No. 52, was established not long after his marriage by that Prince of Wales who was afterward Edward VII. Every candidate for membership had to be approved by the Prince, who found at this club, a few steps from his own door, a place where he could meet his friends without ceremony. It was the custom in the club that he was treated only as a fellow member, and it was considered bad form if any one put down his newspaper when he entered the room. He often sat in the bow window overlooking Pall Mall, but his favorite place was in a room on the ground floor.

Club Is Little Changed.

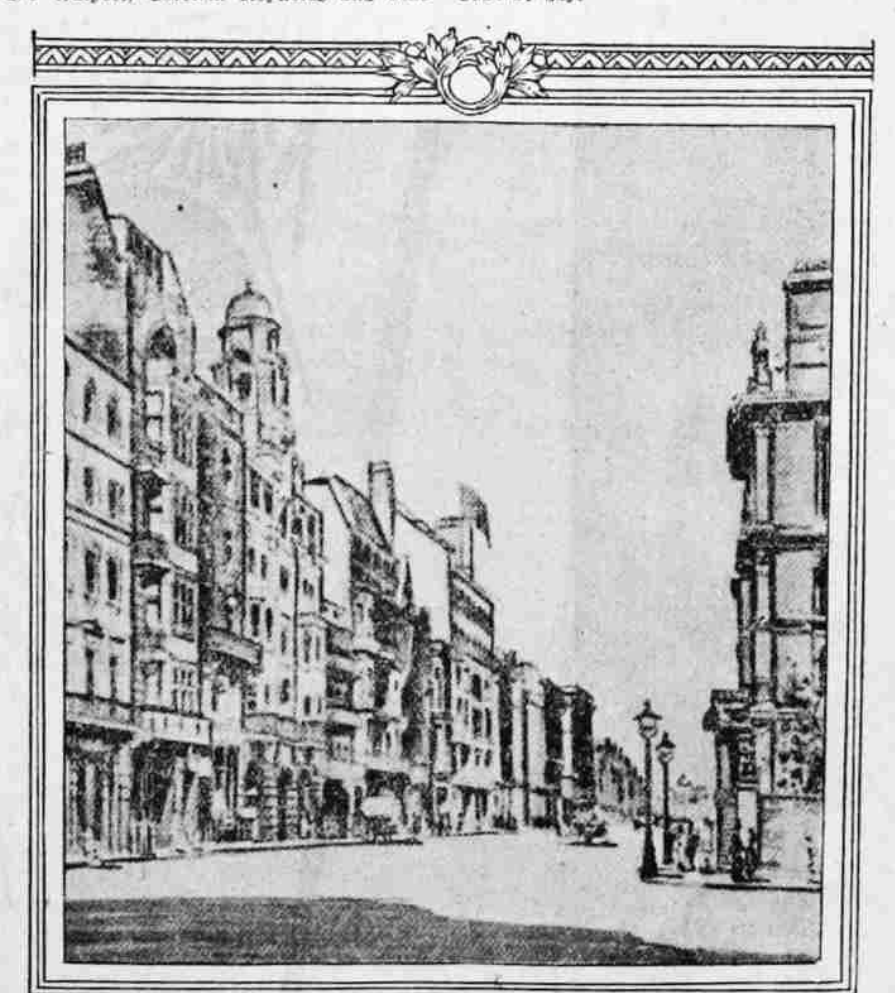
"The club has been little changed and it still has the steel engravings and comfortable furniture of the mid-Victorian period, and the members still dine at separate square tables with well oiled casters, so that when one member desires company at his meal he simply pushes his table along until it joins his friend's.

"Next to the Marlborough Club, and separated by the entrance to the little inlet of Pall Mall Court, is the Guaranty Trust Company of New York's new Wes. End offices. They occupy the site of one of the most famous London literary rendezvous of the eighteenth century—the bookshop with the sign of 'Tully's Head.' It was kept by Robert Dodsley, footman, poet and playwright, who made enough money by these activities to set up here as a publisher and bookseller. He published Sterne's 'Tristram Shand'

and several other works which 'struck the ring of London' on those days.

"In this shop was published in 1759 the first volume of the Annual Register under the editorship of the famous Edmund Burke, a compendium of information and selective taste which had a life of over a century. The shop was one of the sunniest slopes of Farnham for many years. Pope, Johnson, Burke, Chesterfield, Goldsmith, Sterne, Horace Walpole, Garrick, Reynolds and other

great ones of the period met often at 'Tully's Head,' and stayed late. Dodsley's plays had a good deal of success, particularly 'The Toy Shop,' 'The King and the Miller,' 'Mansfield,' and 'The Blind Beggar of Bethnal Green,' and a tragedy called 'Cleone.' He was an amiable, honest and able man, and did much for the advancement of letters. No. 51 must have been at that time near approach to the Marmalade Tavern in Shaftesbury's day.



PALL MALL, LOOKING FROM ST. JAMES STREET TOWARDS THE NATIONAL GALLERY.

"But to return to our clubs. Pall Mall also houses the Junior Carlton, whose windows look out on St. James's Square. 'Junior' does not mean that the members are youths, as any one can see for himself by looking up at the honorable heads at the windows. It only means that, as a club, it is junior to the original club, although the majority of the members may at one time or other be the elder brethren of the senior club members.

There is, too, the Oxford and Cambridge Club and the New Oxford and Cambridge Club (which overlooks Marlborough House), for which members of these ancient universities only are eligible. The parent club has a famous staircase and a series of panels over the upper windows that are understood to be in the best classic manner, and it was designed by the brothers Smirke.

"The United University Club, at the corner of Suffolk street, was reconstructed recently to the designs of Sir Reginald Blomfield, and is an interesting piece of modern scholarly club architecture. The old and the new work in the building bring about some curious results, and there is a legend of a guest who was separated from his host after dinner and is believed to be wandering about the passages there to this very day. The Guards' Club has recently deserted its narrow bow-fronted building in which Disraeli, Gladstone and so many novelists of last century loved to depict their heroes. Then there is the Royal Automobile Club, with its 16,000 members, which has swallowed up half a dozen old club buildings and is an imperial club in a sense that none of the other Pall Mall clubs are.

"It is a man's street—clubs and cigar shops and wine merchants and military tailors and bootmakers, and one shop that sells nothing but swords. But there are women whose memories live in the street, and give it some of its golden light and shade.

Adventures of Nell Gwyn.

"There was Nell Gwyn, orange seller, player, mistress to a king, mother of a duke, a favorite of the people, whose kind thought gave London the adornment of Wren's Chelsea Hospital, which has sheltered old warriors for over two hundred years. She lived at No. 75, on the south side, and at the foot of her garden she once leaned over the wall and had a saucy talk with Charles II., walking in the Mall, as the scandalized Evelyn reports in his Journal. Her house was swept away long ago, and the Society for the Propagation of the Gospel sanctified the spot with its headquarters, but even the godly Bishop Cox of New York, who stayed in the

house in 1850, let his thoughts stray to that Mistress Nelly and came to the conclusion that mercy would be found for her. On the North Side she lived for some time in a house whose site is now occupied by the Army and Navy Club, and the mirror that reflected her fair and provoking face hung there for a while.

"Next to Nell Gwyn's house, in a building that still exists, although shorn of one wing, another last lady of old years held a sort of court. Emma Lyon, a Cheshire village girl, who, after many adventures, became Lady Hamilton, figured here as *Hyacinth* in the 'Temple of Health' of a quack doctor named Graham. There Gainsborough saw her and in his studio, which was in the same building, he painted her as 'Musaora Bathing.' In the picture that is now in the National Gallery, Conway painted her, too, and later Romney began his great series of pictures with the 'divine Emma' as his theme. It was in Naples that Nelson met her.

"Pretty to think' (as Peppys would say) that to-day, in Christie's auction rooms (which were first in Pall Mall), in King street, a stone's throw away, collectors still scramble for the letters of Emma Lyon, and her face in millions of reproductions haunts the world. Nelson loved her. Here was the face that launched a thousand ships. Some say that she inspired him (Nelson said so) as she inspired Romney. She is lighted down the ages by the blaze of Nelson's fame and the glow of Romney and Gainsborough's art. Time cannot close his shadows over her beauty.

Where Gainsborough Died.

"Gainsborough died in that Dutch looking house with its old red brick and stone dressings and its caryatid porch, and according to the story he said to his rival, the great Reynolds, at his bedside, 'We are all going to heaven and Van Dyck is of the company.' The Duke of Cumberland lived here after Colclough, and in a house somewhere in the street Charles Edward Stuart, 'Bonnie Prince Charlie,' the man the Duke vanquished, is said to have held a secret meeting of his remaining friends four years after the battle. He would not then have had the long springy step of the wanderer in the wicker chair, some marched and hid in the islands after Colclough, for the 'lad' that was born to be king was already sinking under dissipation and frustrated hopes.

"The trumpets and drums from St. James's Palace probably sounded out as they sat at the meeting and the last of the Stuarts would look at the fifty faithful who were the heart and think of the thousands that lay under the heather. It is strange to think of the disguised figure stepping along Pall Mall, perhaps through the queer narrow lackey haunted passage of Pall Mall Court, that still keeps some of its eighteenth century air, and away to his lurking coach or sedan chair and so farewell to England. "Pall Mall is a street in which history never has a holiday."